

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1.(Currently Amended) An active matrix-type display device comprising a plurality of pixels including a plurality of EL elements, ~~characterized in that~~ wherein:

said active matrix-type display device comprises a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over a substrate for dividing one frame period into a plurality of sub-frame periods;

said active matrix-type display device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and

a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

2.(Canceled)

3.(Currently Amended) An active matrix-type display device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFTs for controlling a driving of said plurality of EL driving TFTs, ~~characterized in that~~ wherein:

said active matrix-type display device comprises a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over a substrate for dividing one frame period into a plurality of sub-frame periods;

said active matrix-type display device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and

a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

4.(Canceled)

5.(Currently Amended) An active matrix-type display device comprising a plurality of pixels including a plurality of EL elements, ~~characterized in that~~ wherein:

said active matrix-type display device comprises a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over a substrate for dividing one frame period into a plurality of sub-frame periods;

said active matrix-type display device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and

a potential of said first or said second electrode changes in such a manner that a polarity of an

EL driving voltage is inverted for each one frame period; and

adjacent pixels of said plurality of pixels share a power source supply line for supplying a voltage applied to said second electrode,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

6.(Canceled)

7.(Currently Amended) An active matrix-type display device comprising a plurality of pixels, said device including a plurality of EL elements, a plurality of EL driving TFTs for controlling light emission of said plurality of EL elements, a plurality of switching TFT for controlling driving of said plurality of EL driving TFT, ~~characterized in that~~ wherein:

said active matrix-type display device comprises a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over a substrate for dividing one frame period into a plurality of sub-frame periods;

said active matrix-type display device provides a gray scale display by controlling a period of time at which said plurality of EL elements emit light in one frame period;

said plurality of EL elements comprise a first electrode and a second electrode; and

a potential of said first or said second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period; and

a power source supply line for supplying a voltage applied to said second electrode is shared among adjacent pixels of said plurality of pixels,

wherein said EL driving voltage is a difference between said potentials applied to said first and said second electrodes.

8-10.(Canceled)

11. (Previously Presented) An active matrix-type display device according to claim 3, wherein said EL driving TFT and said switching TFT comprise an n-channel type TFT or a p-channel type TFT.

12. (Previously Presented) An active matrix-type display device according to claim 1, wherein said light emission of said plurality of EL elements is controlled with said digital data signal input to said switching TFT.

13. (Previously Presented) An active matrix-type display device according to claim 1, wherein said one frame period is $1/120$ s or less.

14.(Canceled)

15.(Canceled)

16. (Previously Presented) An active matrix-type display device according to claim 1, wherein said active matrix-type display device is incorporated in one selected from the group consisting of a

video camera, a digital camera, a head-mount display, a car navigation system, a personal computer, and a DVD player.

17-22.(Canceled)

23. (Previously Presented) An active matrix-type display device according to claim 3, wherein said light emission of said plurality of EL elements is controlled with said digital data signal input to said switching TFT.

24.(Canceled)

25. (Previously Presented) An active matrix-type display device according to claim 5, wherein said light emission of said plurality of EL elements is controlled with said digital data signal input to said switching TFT.

26.(Canceled)

27. (Previously Presented) An active matrix-type display device according to claim 7, wherein said light emission of said plurality of EL elements is controlled with said digital data signal input to said switching TFT.

28-31.(Canceled)

32. (Previously Presented) An active matrix-type display device according to claim 3, wherein said one frame period is $1/120$ s or less.

33.(Canceled)

34. (Previously Presented) An active matrix-type display device according to claim 5, wherein said one frame period is $1/120$ s or less.

35.(Canceled)

36. (Previously Presented) An active matrix-type display device according to claim 7, wherein said one frame period is $1/120$ s or less.

37-42.(Canceled)

43. (Previously Presented) An active matrix-type display device according to claim 3, wherein said active matrix-type display device is incorporated in one selected from the group consisting of a video camera, a digital camera, a head-mount display, a car navigation system, a personal computer, and a DVD player.

44-46.(Canceled)

47. (Previously Presented) An active matrix-type display device according to claim 7, wherein said active matrix-type display device is incorporated in one selected from the group consisting of a video camera, a digital camera, a head-mount display, a car navigation system, a personal computer, and a DVD player.

48-50.(Canceled)

51. (Previously Presented) An active matrix-type display device comprising:

- an EL driving thin film transistor over a substrate;
- a switching thin film transistor over the substrate;
- an EL element comprising a first electrode, an organic EL material over the first electrode, and a second electrode over the organic EL material, wherein the EL element is electrically connected to the EL driving thin film transistor; and
- a driver circuit comprising a plurality of first thin film transistors over the substrate for driving the switching thin film transistor;
- a time division gray-scale data signal generating circuit comprising a plurality of second thin film transistors over the substrate for dividing one frame period into a plurality of sub-frame periods,
- wherein a gray scale display is provided by controlling a period of time at which the EL element emits light in the one frame period,
- wherein a potential of the first or the second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period, and

wherein the EL driving voltage is a difference between the potentials applied to the first and the second electrodes.

52. (Previously Presented) An active matrix-type display device according to claim 51, wherein the one frame period is 1/120 s or less.

53. (Previously Presented) An active matrix-type display device according to claim 51, wherein the organic EL material comprises a low molecular organic material selected from the group consisting of Alq₃ (tris-8-quinolylite-aluminum), and TPD (triphenylamine derivative).

54. (Previously Presented) An active matrix-type display device according to claim 51, wherein the organic EL material comprises a polymer organic material selected from the group consisting of PPV (polyphenylenevinylene), PVK (polyvinyl-caracole), and polycarbonate.

55. (Currently Amended) An active matrix-type display device according to claim 51, wherein the first electrode is an anode and the second electrode is a cathode.

56. (Currently Amended) An active matrix-type display device according to claim 51, wherein the first electrode is a cathode and the second electrode is an anode.

57. (Previously Presented) An active matrix-type display device according to claim 51, wherein the active matrix type display device is incorporated in at least one selected from the group

consisting of a personal computer, a video camera, a head mount display, a DVD player, a mobile computer, a digital camera, a mobile phone, and an electronic book.

58-64.(Canceled)

65.(Currently Amended) An active matrix-type display device comprising:

an EL driving thin film transistor over a substrate;

a switching thin film transistor over the substrate; [[and]]

an EL element comprising a first electrode, an organic EL material over the first electrode, and a second electrode over the organic EL material, wherein the EL element is electrically connected to the EL driving thin film transistor[[,]]; and

a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over the substrate for dividing one frame period into a plurality of sub-frame periods,

wherein a gray scale display is provided by controlling a period of time at which the EL element emits light in the one frame period,

wherein a potential of the second electrode is held constant and a potential of the first electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period, and

wherein the EL driving voltage is a difference between the potentials applied to the first and the second electrodes.

66. (Previously Presented) An active matrix-type display device according to claim 65, wherein

the one frame period is 1/120 s or less.

67. (Previously Presented) An active matrix-type display device according to claim 65, wherein the organic EL material comprises a low molecular organic material selected from the group consisting of Alq₃ (tris-8-quinolylite-aluminum), and TPD (triphenylamine derivative).

68. (Previously Presented) An active matrix-type display device according to claim 65, wherein the organic EL material comprises a polymer organic material selected from the group consisting of PPV (polyphenylenevinylene), PVK (polyvinyl-caracole), and polycarbonate.

69. (Currently Amended) An active matrix-type display device according to claim 65, wherein the first electrode is an anode and the second electrode is a cathode.

70. (Currently Amended) An active matrix-type display device according to claim 65, wherein the first electrode is a cathode and the second electrode is an anode.

71. (Previously Presented) An active matrix-type display device according to claim 65, wherein the active matrix type display device is incorporated in at least one selected from the group consisting of a personal computer, a video camera, a head mount display, a DVD player, a mobile computer, a digital camera, a mobile phone, and an electronic book.

72. (Currently Amended) An active matrix-type display device comprising:

an EL driving thin film transistor over a substrate;
a switching thin film transistor over the substrate;
a first insulating film comprising a resin material over the EL driving thin film transistor and the switching thin film transistor;
a second insulating film on a portion of the first insulating film; [[and]]
an EL element comprising a first electrode formed on the first insulating film, an organic EL material over the first electrode, and a second electrode over the organic EL material, wherein the EL element is electrically connected to the EL driving thin film transistor[[[,]]; and
a time division gray-scale data signal generating circuit comprising a plurality of thin film transistors over the substrate for dividing one frame period into a plurality of sub-frame periods,
wherein a gray scale display is provided by controlling a period of time at which the EL element emits light in the one frame period,
wherein a potential of the first or the second electrode changes in such a manner that a polarity of an EL driving voltage is inverted for each one frame period, and
wherein the EL driving voltage is a difference between the potentials applied to the first and the second electrodes.

73. (Previously Presented) An active matrix-type display device according to claim 72, wherein the one frame period is 1/120 s or less.

74. (Previously Presented) An active matrix-type display device according to claim 72, wherein the organic EL material comprises a low molecular organic material selected from the group

consisting of Alq₃ (tris-8-quinolylite-aluminum), and TPD (triphenylamine derivative).

75. (Previously Presented) An active matrix-type display device according to claim 72, wherein the organic EL material comprises a polymer organic material selected from the group consisting of PPV (polyphenylenevinylene), PVK (polyvinyl-caracole), and polycarbonate.

76. (Previously Presented) An active matrix-type display device according to claim 72, wherein the first insulating film comprises one selected from the group consisting of polyimide, polyamide, acrylic resin, and BCB (benzocyclobutene).

77. (Previously Presented) An active matrix-type display device according to claim 72, wherein the second insulating film comprises one selected from the group consisting of silicon oxide, silicon nitride oxide, and an organic resin.

78. (Currently Amended) An active matrix-type display device according to claim 72, wherein the first electrode is an anode and the second electrode is a cathode.

79. (Currently Amended) An active matrix-type display device according to claim 72, wherein the first electrode is a cathode and the second electrode is an anode.

80. (Previously Presented) An active matrix-type display device according to claim 72, wherein the active matrix type display device is incorporated in at least one selected from the group

consisting of a personal computer, a video camera, a head mount display, a DVD player, a mobile computer, a digital camera, a mobile phone, and an electronic book.

81-107.(Canceled)